CLAIMS

1. A projection system comprising
   (a) a substantially planar light source,
   (b) means for converting light from said planar light source into a single polarization,
   (c) an imaging lens for imaging said planar light source onto a light valve imager,
   (d) a polarizing beam splitter for separating the input and output light on the said light valve imager, and
   (e) a projection lens to project the image on the light valve imager onto a screen.

2. A projection system as claimed in claim 1 wherein the light valve imager comprises a reflective liquid crystal on silicon microdisplay.

3. A projection system as claimed in claim 1 wherein the light valve imager is provided with color filters on subpixels.

4. A projection system as claimed in claim 1 wherein the means for converting light from the planar light source into a single polarization comprises a quarterwave retardation film and a reflective polarizer film placed in close proximity to the said planar light source.

5. A projection system as claimed in claim 1 wherein said planar light source is a vacuum field emission device.

6. A projection system as claimed in claim 1 wherein said planar light source is a cold cathode fluorescence lamp with a planar discharge plasma.

7. A projection system as claimed in claim 1 wherein said planar light source is an array of light emitting diodes arranged in a closely packed manner on a plane.

8. A projection system as claimed in claim 1 wherein said planar light source comprises an optical film for collimating the light so that it propagates predominantly in the forward direction.

9. A projection system as claimed in claim 1 wherein said planar light source comprises a reflective surface for reflecting ultraviolet light and transmitting visible light.

10. A projection system comprising

(a) a substantially planar red light source,

(b) means for converting light from said red planar light source into a single polarization,

(c) a first imaging lens for imaging said red planar light source onto a first light valve imager,

(d) a first polarizing beam splitter for separating the said red input and red output light on the said first light valve imager,

(e) a substantially planar green light source,

(f) means for converting light from said green planar light source into a single polarization,

(g) a second imaging lens for imaging said green planar light source onto a second light valve imager,

(h) a second polarizing beam splitter for separating the said green input and green output light on the said second light valve imager,

(i) a substantially planar blue light source,

(j) means for converting light from said blue planar light source into a single polarization,

(k) a third imaging lens for imaging said blue planar light source onto a third light valve imager,

(l) a third polarizing beam splitter that separates the said blue input and blue output light on the said third light valve imager,

(m) an x-cube prism for combining the said output red green and blue lights from the first, second and third light valve imagers, and

(n) a projection lens for projecting the combined full color image of the combined first, second and third light valve imagers onto a screen

11. A projection system as claimed in claim 10 wherein the light valve imagers comprises reflective liquid crystal on silicon microdisplays.

12. A projection system as claimed in claim 10 wherein said red, green and blue planar light sources are separate sources.

13. A projection system as claimed in claim 10 wherein a single planar white light source is provided, said system further comprising red, green and blue dichroic filters to provide said red, green and blue light sources.

14. A projection system as claimed in claim 10 wherein the means for converting the light output from the red, green and blue planar light sources into a single polarization comprises first, second and third quarterwave retardation films and reflective polarizer films placed respectively in close proximity to the respective red, green and blue planar light sources.

15. A projection system as claimed in claim 10 wherein each said planar light source comprises a vacuum field emission device.

16. A projection system as claimed in claim 10 wherein each said planar light source comprises a cold cathode fluorescence lamp with a planar discharge plasma.

17. A projection system as claimed in claim 10 wherein each said planar light source comprises an array of light emitting diodes arranged in a closely packed manner on a plane.

18. A projection system as claimed in claim 10 wherein each said planar light source comprises an optical film for collimating the light so that is propagates predominantly in the forward direction.

19. A projection system as claimed in claim 10 wherein each said planar light source is provided with a reflective surface to reflect ultraviolet light and transmit visible light.

20. A projection system comprising

(a) a substantially planar light source,

(b) means for converting light from said planar light source into a single polarization,

(c) an imaging lens for imaging said planar light source onto a transmittive active matrix liquid crystal cell light valve imager, and

(d) a projection lens for projecting the image on the light valve imager onto a screen.

21. A projection system as claimed in claim 20 wherein the means for converting the light output from the planar light source into a single polarization comprises a quarterwave retardation film and a reflective polarizer film placed in close proximity to the said planar light source.

22. A projection system as claimed in claim 20 wherein said planar light source comprises a vacuum field emission device.

23. A projection system as claimed in claim 20 wherein said planar light source comprises a cold cathode fluorescence lamp with a planar discharge plasma.

24. A projection system as claimed in claim 20 wherein said planar light source comprises an array of light emitting diodes arranged in a closely packed manner on a plane.

25. A projection system as claimed in claim 20 wherein said planar light source comprises an optical film for collimating the light so that is propagates predominantly in the forward direction.

26. A projection system as claimed in claim 20 wherein said planar light source is provided with a reflective surface to reflect ultraviolet light and transmit visible light.

27. A projection system comprising

(a) a substantially planar red light source,

(b) means for converting light from said red planar light source into a single polarization,

(c) a first imaging lens for imaging said red planar light source onto a first transmittive active matrix liquid crystal cell light valve imager,

(d) a substantially planar green light source,

(e) means for converting light from said green planar light source into a single polarization,

(f) a second imaging lens for imaging said green planar light source onto a second transmittive active matrix liquid crystal cell light valve imager,

(g) a substantially planar blue light source,

(h) means for converting light from said blue planar light source into a single polarization,

(i) a third imaging lens for imaging said blue planar light source onto a third transmittive active matrix liquid crystal cell light valve imager,

(j) an x-cube prism for combining the said output red green and blue lights from the three light valve imagers, and

(k) a projection lens for projecting the combined full color image of the combined first, second and third light valve imagers onto a screen.

28. A projection system as claimed in claim 27 wherein the means for converting the light output from the red, green and blue planar light sources into a single polarization comprises first, second and third quarterwave retardation films and reflective

polarizer films placed respectively in close proximity to the respective red, blue and green planar light sources.

29. A projection system as claimed in claim 27 wherein each said planar light source is a vacuum field emission device.

30. A projection system as claimed in claim 27 wherein each said planar light source is a cold cathode fluorescence lamp with a planar discharge plasma.

31. A projection system as claimed in claim 27 wherein each said planar light source is an array of light emitting diodes arranged in a closely packed manner on a plane.

32. A projection system as claimed in claim 27 wherein each said planar light source comprises an optical film for collimating the light so that it propagates predominantly in the forward direction.

33. A projection system as claimed in claim 27 wherein each said planar light source comprises a reflective surface for reflecting ultraviolet light and transmitting visible light.

34. A projection system comprising

(a) a substantially planar light source,

(b) means for pulsing the said light source to provide red green and blue colors sequentially in time.

(c) an imaging lens for imaging said planar light source onto a reflective digital mirror light valve imager, and

(d) a projection lens for projecting the image on the said light valve imager onto a screen.

35. A projection system as claimed in claim 34 wherein said planar light source is a vacuum field emission device.

36. A projection system as claimed in claim 34 wherein said planar light source is a cold cathode fluorescence lamp with a planar discharge plasma.

37. A projection system as claimed in claim 34 wherein said planar light source is an array of light emitting diodes arranged in a closely packed manner on a plane.

38. A projection system as claimed in claim 34 wherein said planar light source comprises an optical film for collimating the light so that it propagates predominantly in the forward direction.

39. A projection system as claimed in claim 34 wherein said planar light source comprises a reflective surface for reflecting ultraviolet light and transmitting visible light.

40. A projection system comprising

(a) a substantially planar red light source,

(b) a first imaging lens for imaging said red planar light source onto a first reflective digital mirror light valve imager,

(c) a substantially planar green light source,

(d) a second imaging lens for imaging said green planar light source onto a second reflective digital mirror light valve imager,

(e) a substantially planar blue light source,

(f) a third imaging lens for imaging said blue planar light source onto a third reflective digital mirror light valve imager,

(g) an x-cube prism for combining the said output red green and blue lights from the three light valve imagers, and

(h) a projection lens for projecting a combined full color image of the said light valve imagers onto a screen.

41. A projection system as claimed in claim 40 wherein each said planar light source comprises a vacuum field emission device.

42. A projection system as claimed in claim 40 wherein each said planar light source comprises a cold cathode fluorescence lamp with a planar discharge plasma.

43. A projection system as claimed in claim 40 wherein each said planar light source comprises an array of light emitting diodes arranged in a closely packed manner on a plane.

44. A projection system as claimed in claim 40 wherein each said planar light source comprises an optical film to collimate the light to propagate predominately in the forward direction.

45. A projection system as claimed in claim 40 wherein each said planar light source comprises a reflective surface to reflect ultraviolet light and transmit visible light.

46. A projection system comprising a substantially planar light source, imaging means for imaging said planar light source onto a light valve imager, and a projection means for projecting the image on the light valve imager onto a screen.